DIVISION OF REMEDIATION

Bureau of Remediation and Waste Management

2000 Annual Report

February 2001

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The End Of A Millennium And A Look At Twenty Years Of Environmental Excellence

This year we celebrate our 20th anniversary investigating and cleaning up hazardous waste sites. The sites we face now are more complex and the hazards more subtle than those of 20 years ago. Searching for innovative and cost-effective solutions are an important part of our work. Innovative removals/clean-up actions are on-going at federal Superfund sites like Loring Air Force Base in Limestone, Eastland Woolen Mill in Corinna, Union Chemical in South Hope, and Eastern Surplus in Meddybemps. State site clean-ups have used innovative remedies like the dual-phase soil vapor and ground water extraction systems at Allen's Garage in North Jay, a ground water pump and treat system at an old gasoline station on Tory Hill in Buxton and a shallow micro-well pump and treat system in Gorham to protect and clean-up ground water cost-effectively. At sites like the Cooper Sand/Salt Pile, Marine Trade Center in Eastport, the Jamaica Island Landfill at Portsmouth Naval Shipyard, Bessey's in Hinckley, Varney's Store in Windsor, and the Off Island Store in Sprucehead, staff oversaw contaminated soil removals to protect the public's health and safety.

Raising the bar on their own standards of excellence, the Voluntary Response Action Plan (VRAP) program group investigated 47 new sites, for a total of 257 sites examined for cleanup and reuse. Staff conducted nine final site assessment reports for EPA this year and two sites were removed from the active CERCLIS, bringing the total number of sites archived to 44. Our EPA Brownfields Grant allows us to inform people about the Brownfields program through newsletters and meetings and to assist municipalities in the investigation and marketing of contaminated sites for future use. Three issues of the Maine VRAP/Brownfields Newsletter were published this year, reaching over 600 municipal officials, attorneys, consultants, and lenders. You may download the newsletters from our webpage (see last page for the web address).

This year we made the final payments for work completed in 1999 as part of the closure portion of the Municipal Landfill Closure and Remediation Program. A total of 371 of the 402 municipal landfills were closed during the 12 year program. Of the remaining 31 municipal landfills, 16 are inactive, and 15 are licensed and active for a closure rate of over 92%. Municipalities received over $79 million for the work that was completed. Most were reimbursed 75% of their costs.

The dirt really "flew" this year, as we completed cleanup at a large number of underground tank sites, Superfund sites, state uncontrolled hazardous substance sites, federal sites, and private sites. A number of long-term underground tanks sites were successfully closed out this year. Emergency removal of hazardous materials at sites in Cooper, Eastport, Monticello, and Greene protected the public from immediate health threats.

The Division's Annual Reports, Site Lists, and the Soil Cleanup Guidelines are available on the Division's Internet Homepage. These documents and our Risk Assessment Guidance for Hazardous Substance Sites are also available by mail. Call, write, or e-mail if you have questions about any of our sites. We look forward to another challenging and successful year.

– Mark Hyland, Division Director

Uncontrolled Sites Program

In 2000, in addition to activities at Wyman Auto Body, Gorham and Allen's Garage, North Jay, both of which are featured in this report, the Uncontrolled Sites Program (USP) was involved with remedial activities at a number of sites. The following describes some USP activities.

The USP finalized a consent decree with TRC, Inc. and 246 "original" potentially responsible parties (PRP) to clean-up the Portland Bangor Waste Oil Site, Wells. Under the terms of the consent decree, TRC, in exchange for a fee, assumed the liability for clean-up from the PRPs. This complicated and sometimes controversial effort is the largest state lead (non-Superfund) remedial effort in the history of the program.

The USP was successful in gaining potential responsible party interest in addressing environmental issues associated with contamination at the Kerramerican Mine site in Blue Hill.

The USP worked with the EPA to have 3000 cubic yards of PCB contaminated sand and salt removed from a sand/salt storage yard in Cooper and taken to a licensed facility for disposal. The cost of this operation, paid by the federal Superfund program, exceeded $700,000.

The USP worked with the Town of Sanford and a private consultant to development and implement of a system designed to keep hazardous substance contamination from impacting the Mousam River. The approach uses a subsurface barrier and a series of recovery wells to prevent ground water from passing under and/or through the Rushton Street Landfill and impacting the river.

The USP would like to acknowledge the continued support and contribution of Technical Services geologists and engineers, and Department of Attorney General, Assistant Attorney General, Dennis Harnish. The USP also recognizes the support and assistance from the other programs within the division, in particular the Site Assessment and Support Services Unit.

— Hank Aho, Unit Leader

Allen's Garage, North Jay

The Allen's Garage Site was an automobile repair facility that operated from around 1960 to 1986. Degreasing solvents used to clean engine parts were allegedly disposed of into a floor drain that discharged to the soil at the rear of the garage.

Division personnel, together with Division of Technical Services Staff, have been working with consultants from GZA GeoEnvironmental to characterize and clean up this Site since 1994. Sampling and analysis of soil and groundwater revealed two distinct plumes of contaminants. One plume consists of dichlorobenzene and its derivatives from the solvent disposal. The other plume consists of petroleum hydrocarbons not inconsistent with the constituents of degraded motor oil, which likely originated from the disposal of used motor oil.

GZA prepared a Feasibility Study in 1996 to evaluate then available technologies for remediation at the Site. After careful review of several promising remedies, division personnel concurred with GZA on the selection of the dual-phase extraction and treatment system (DPETS) option for site remediation.

At the heart of the DPETS system, a liquid-ring vacuum pump located in the onsite treatment trailer (photo right) continuously extracts a mixture of contaminated ground water and soil vapor from the wells. Contaminants are stripped from the media inside the trailer and the clean air and water are discharged back into the environment.

Treatment trailer situated adjacent to back wall of North Jay Grange Hall. One of six liquid phase granular activated carbon treatment tanks can be seen in the open door of trailer. A vapor phase activated carbon treatment drum is visible to the right of the trailer.

Preliminary to treatment, water is separated out of the air stream (soil vapor) in an air/water separator (photo top of next page). Contaminated soil vapor is drawn through the liquid ring pump and discharged through an off-gas carbon treatment system, which strips the air of contaminants. Water from the air/water separator is sent to an oil/water separator where oil in the water is separated out and collected in a 55-gallon drum. The chlorobenzene-contaminated water is pumped through a

View of the left side interior of the treatment trailer. The blue tank to the left is the air/water separator. The green vertical cylinder in the center is a bag filter, which filters out larger particles from the water. The silver liquid ring-pump can be seen to the right of the bag filter. The chrome cabinet in the far right background of the photo is the oil/ water separator.

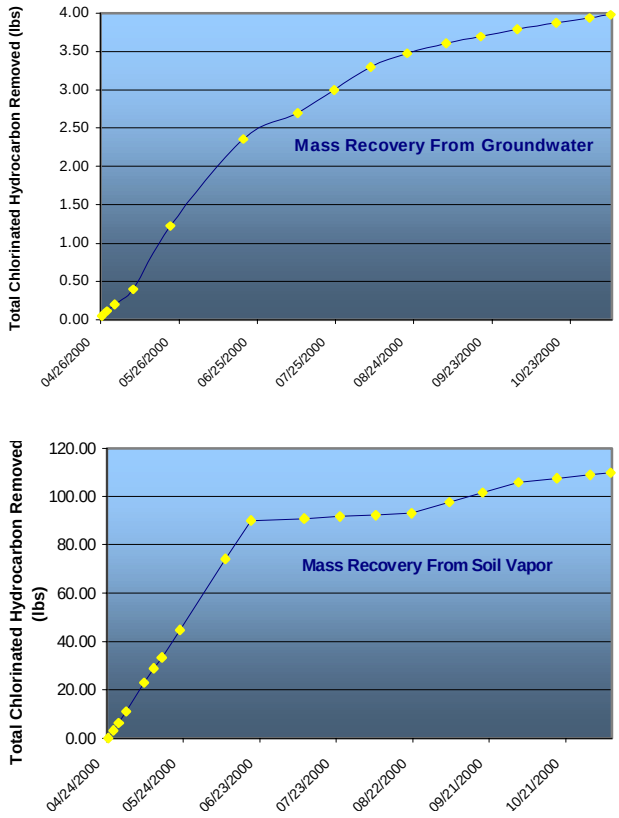
series of liquid-phase granular activated carbon units that strip the contaminants from the water (photo below). Clean water is reintroduced to the water table by means of a ground surface diffuser.

Blue air/water separator tank visible from the rear of the treatment trailer. The six gray liquid-phase granular activated carbon tanks are visible on the right.

The treatment trailer is equipped with a system shutoff safeguard, which automatically shuts down the entire system when a malfunctioning condition is detected. A system shutdown in turn sets off a silent alarm activating an auto-dialer, which dials up to four preprogrammed telephone numbers. When an alarm call is answered, one of four possible system malfunction messages is delivered in digitized speech, to alert the responder to the nature of the shutdown.

The alarm/auto-dialer was put to good use during the first few months of operation. May and June were characterized by intermittent shutdowns due to overheating of the liquid ring pump. The overheating condition was traced to a factory installation error, and was eventually corrected by the manufacturer with the installation of an oversized exhaust fan and an additional air vent. Several addition shutdowns occurred throughout the season due mostly to temporary power interruptions. Nevertheless, the system was in continuous operation 94% of the time day and night between April and November.

A total of 114 pounds of chlorinated hydrocarbons were removed from media during the 2000 season. Some 96.5% of this recovery (or 110 pounds) was stripped from contaminated soil vapor; the remaining 3.5% (or 4 pounds) was stripped from groundwater (see charts below). Assuming the density of the average dichlorobenzene compound is 1.2 grams per cubic centimeter, the above figures convert to a total recovery of 11.4 gallons of chlorinated hydrocarbon during the 2000 remediation season.



Incremental mass recovery of total chlorinated compounds from groundwater and soil vapor during 2000 remediation season.

During the April to November 2000 season, approximately 638,000 gallons of groundwater were treated and released. This represents approximately 2.3 times the volume of water in the treatment area. Observed decreases in the concentrations of chlorinated hydrocarbon compounds in groundwater samples taken during the 2000 season suggest that significant progress has been made in remediation of this aquifer in just the first year. However, reliable estimates of progress await a seasonal comparison of data, which will be available with additional sampling in 2001. *(Randy King)*

Wyman Auto Body, Gorham

Several residential wells in the Black Brook Road area of Gorham, Maine are polluted with industrial chemicals and hydrocarbons. The source of the pollutants was identified as Wyman Auto Body, a local auto body repair shop located on New Portland Road. Chemicals released at the auto body site contaminated soil and groundwater beneath the shop, eventually impacting the local bedrock aquifer and neighborhood water supplies. The DEP investigated site conditions, then located and removed two underground tanks and associated impacted soil.

Wyman Auto Body, as seen near the intersection of New Portland Road and Brackett Road, Gorham

Water Supply Replacement

A feasibility study (FS) was completed and presented to the public on August 31, 1999. Public comments were taken from September 1 until October 8, 1999, and a public meeting was held to receive verbal comments. The majority of public comment expressed support for the waterline extension option, and so DEP responded by funding a Portland Water District (PWD) study of depths to bedrock along the proposed waterline route. That study resulted in revised estimates of bedrock blasting and cost, which led to the announcement of a new preferred remedy. DEP presented the new remedial plan in January 2000.

DEP contracted with PWD to extend the existing waterline from Libby Avenue to Black Brook Road. Engineering design work for the waterline extension began in late January, 2000. Gorham Sand & Gravel, Inc. was the successful bidder for the construction project, with McGoldrick Brothers subcontracted for blasting work and McGowan Plumbing, Inc. for the plumbing connections.

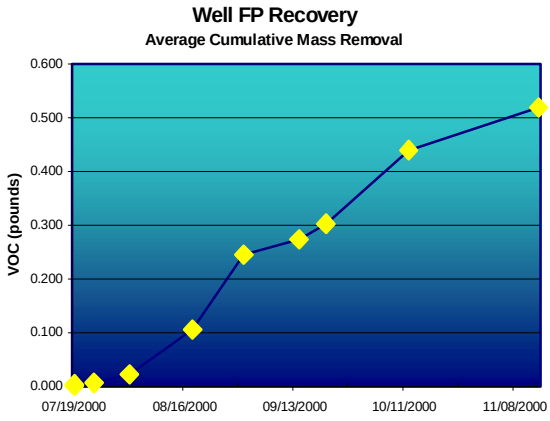
Construction began on June 20, 2000. The waterline extension funded by the State Bond Fund was limited to replacing three wells impacted or threatened by hazardous chemicals released at the site. Portland Water District contractors dug roadside trenches and installed 2519 linear feet of pipe from Patio Park on Libby Avenue, through a crossing at New Portland Road, to the affected homes on Black Brook Road. With assistance from the Town of Gorham, some residents of Black Brook Road located beyond the area of impact chose to continue the extension an additional 699 feet to the cul-de-sac, and then radially to homes that wanted a public water hookup. Residential properties along Libby Avenue and Brackett Road, located adjacent to the newly installed line, were offered the opportunity to purchase a connection to the waterline, as well.

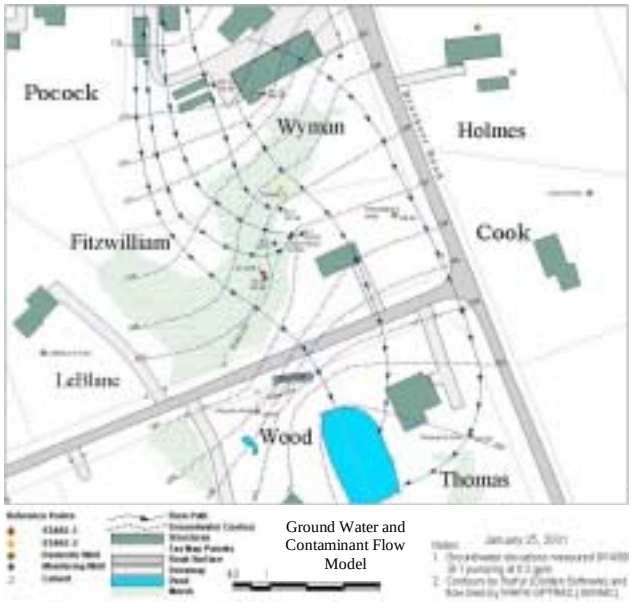
Three state-subsidized residential hookups were completed on August 1, 2000; the waterline extension was completed on August 4.

Aquifer Remediation Program

In May 2000, DEP implemented a remediation plan designed to pump the impacted bedrock aquifer and remove, to the extent possible, contaminants released at the Wyman Auto Body Shop. Pumping contaminated water from the aquifer was expected to control plume migration as well remove chemicals. Initial pumping efforts centered on the well that exhibited the highest concentrations of the chemicals of concern. Water

Remedial pump and treat pilot test installation, May 2000, Black Brook Road, Gorham





removed from the well was stored temporarily in a fractionation tank, which was periodically drained to a transport truck and removed to a Portland waste water treatment facility. Pumping continued in this manner until mid-July, when blasting for the waterline installation changed flow dynamics in the upper level fractures.

Meanwhile, the overburden aquifer investigation indicated the presence of contamination that could benefit from the pumping program, so a piezometer well was installed and introduced to the system. Following the July 19th blasting, the piezometer became the primary pumping site. To date, 0.632 pounds of VOCs were removed from Black Brook Road groundwater by the aquifer remediation program.

Groundwater Protection Plan

The final component of the remedial plan is a groundwater protection plan, designed to protect the remaining wells that draw water from the bedrock in the Black Brook Road area. John Rand, consulting hydrogeologist, and DEP assisted the Town of Gorham in identifying a Water Resource Management Area, within which the town will administer a groundwater protection ordinance. The ordinance will maintain the present balance of groundwater withdrawal, to help control plume migration and to allow the DEP pump and treat program the greatest opportunity for success.

DEP attended workshop meetings with the Gorham Planning Board from May to November 2000 to develop the Groundwater Protection Ordinance. Members of the community participated with state and town officials to craft an ordinance that manages land use that could change the groundwater flow patterns and cause the contamination to impact more wells. Gorham Town Council adopted the Groundwater Protection Ordinance on December 5, 2000. *(Kathy Niziolek)*

State Lead Cleanups and Accomplishments

In a departure from previous years, the 2000 accomplishment information is presented in tabular form rather than as lists. This format change attempts to provide meaningful information in a clear, concise and orderly manner, rather than simply recite lists of various remedial activities. Relative relationships of site activities are also evident and can be appreciated.

Definitions and Explanations of terms used in the Site Table (next page).

C/R - Cost Recovery

DES - Waterline *Design*

FS - Feasibility Study identifies remedial action alternatives, establishes the process for evaluating an acceptable remedial action and ultimately selects the preferred alternative.

MOM - Management of Migration refers to efforts to mitigate the effects of and/or to control the spread of contaminated groundwater plumes.

MON - Monitoring refers to long-term monitoring for the purpose of, among other things, evaluating the effectiveness of a remedy, monitoring contamination in a water source, or checking the performance of point of entry treatment system.

O&M - Operation and Maintenance includes activities undertaken to ensure the integrity, performance and effectiveness of a selected remedy. Examples are: fence repair, cap/cover repair and filter maintenance.

RA - Remedial Action means the actual implementation of the remedial action. Remedial actions are classified as source control or management of migration (MOM) or groundwater control activities.

RD - Remedial Design refers to the phase after the remedy is chosen that results in plans and specifications for actual on-site implementation.

REM - Removal Actions are often time-critical partial cleanup activities, usually involving the physical removal of source contaminants from a site.

RI - Remedial Investigation identifies and fills data gaps so that specific remedial alternatives can be evaluated.

SA - Site Assessments are conducted to characterize a site. They may include such things as identification of contaminant source areas, determination of the nature of contamination, description of probable groundwater flow direction, and identification of potential receptors and potential pathways of off-site migration.

W/L - Waterline

State Lead Cleanups/Accomplishments - 2000

				Source Control				W/L		MOM						
SITE	TOWN	SA	REM	RI	FS	RD	RA	DES	Con	RI	FS	RD	RA	O&M	MON	C/R
Miltonia Management	Acton	X												X		
GE Building # 30	Bangor						X									X
Dauphin Disposal	Bath													X		X
Rumford Nat'l Graphics	Belfast												X			X
Kerramerican Mine	Blue Hill			X												
Portland Bangor Waste Oil	Casco			X												
Peterson's Farm Store	Colby (Woodland)														X	
Cooper Sand & Salt Pile	Cooper		X													
Blackstrap Rd.	Cumberland													X		
Harris Road	Cumberland													X		
Fayscott	Dexter			X	X	X										X
Maine Leathers	Dover-Foxcroft				X											
Vahlsing Warehouse	Easton			X												
Boggy Brook VTC	Ellsworth													X		
Robbin's Property	Ellsworth			X	X									X	X	
Silvex	Gorham														X	
Wyman's Autobody	Gorham							X	X			X	X	X	X	
Leeds Metal	Leeds														X	
Millington Enterprises	Lincolnville														X	X
Farwell Mill	Lisbon												X			
Old Bonafide Landfill	Lisbon			X												
Green Hill Quarry	Meddybemps			X												
Olsky Landfill	Mexico		X	X	X	X										
Tex Tech	Monmouth													X		
No. Berwick Mun. Garage	No. Berwick														X	X
Allen's Garage	No. Jay					X	X					X	X			
Engineering Industries	Norway														X	
Wilner Wood Products	Paris													X	X	
A. C. Lawrence	Paris	X														
Pine Tree Shopping Center	Portland		X													
Aroostook State Farm	Presque Isle			X											X	
Saco Tannery Pits	Saco													X	X	X
CGA, Inc.	Sanford			X												
Sanford Landfill	Sanford											X	X	X	X	
Hooper Sands Road	So. Berwick														X	
RRAS	Vassalboro	X														
GTE	Waldoboro												X	X	X	X
Pinette's Salvage Yard	Washburn														X	
Waterboro Patent	Waterboro														X	
Waterboro Lagoons	Waterboro			X												
Lewis Wolman Co.	Waterville			X	X											
Portland Bangor Waste Oil	Wells				X			X		X						
Seaway Boats, Rte. 202	Winthrop															
Hunt Lumber Co.	Wiscasset			X											X	
New England Pole	Yarmouth						X							X		X

Other Related Activities

Negotiations with responsible parties were held for Portland Bangor Waste Oil, Wells; Fayscott Company, Dexter; Kerramerican Mine, Blue Hill; Callahan Mine, Cape Rosier; Leeds Metal, Leeds; Waterboro Patent Lagoons, Waterboro; and Wolman Company, Waterville.

Meetings with municipal officials, the public and/or concerned citizens. Meetings were held with/or in Cooper, Gorham, Wells, Yarmouth, and Sanford.

Agreements: A multiparty consent decree was finalized for the PBWO site in Wells, which included a large number (246) of participating parties. An agreement to provide a subsidy to the Plymouth Water District (PBWO Site), Plymouth was finalized.

Waterlines: A waterline was extended to three residences whose water supply had been impacted by hazardous substance contamination from the Wyman Auto Body Site in Gorham. A waterline extension is being designed for Burnt Mill Road residences adversely impacted by hazardous substance contamination from the PBWO Site in Wells.

Contractor work was performed in regard to Portland Bangor Waste Oil, Wells; Kerramerican Mine, Blue Hill; Wyman Auto Body, Gorham; Allen's Garage, North Jay; Portland Bangor Waste Oil, Ellsworth; Glenburn Town Office, Glenburn; and Wolman Company, Waterville.

Cost recovery funds were received from responsible parties for North Berwick Municipal Garage, North Berwick; Rumford National Graphics, Belfast; GE Buildings #10 & #30, Bangor; Dauphin Landfill, Bath; and, Fayscott Company, Dexter. Cost recovery efforts continue for Saco Tannery Pits, Saco; Central Chemical Co., Greene; Seaway Boats, Winthrop; Millington Enterprises, Lincolnville; NE Pole, Yarmouth and Southern Maine Finishing in Waterboro.

Activity with federal agency. DEP worked with EPA to coordinate a removal action at the Cooper Sand and Salt Pile, Cooper and on a Site Inspection for the Miltonia Management Site, Acton. In coordination with EPA, DEP is reviewing institutional control mechanisms for the Pinette's Salvage Yard Superfund Site, Washburn.

Land Use Restrictions. DEP assisted the Town of Gorham in drafting a land use restriction ordinance which was implemented by the town. The Town of Sanford implemented land use restrictions on impacted "off-site" property in the area of the Rushton Street Landfill. DEP is working with responsible parties to implement land use restrictions at the NE Pole Site, Yarmouth and at Brewer Junkyard Site, Brewer.

The Bureau of Remediation and Waste Management (BRWM) has employed Institutional Controls (ICs) in one form or another for several years. Different programs within BRWM have used different ICs. ICs have provided notice to potential purchasers or users of a property that waste has been left in place. ICs have restricted access to areas contaminated by hazardous substances or petroleum and ICs have protected caps, covers, wells and other engineered remedial measures. Numerous questions exist concerning previously implemented ICs. Among the issues of concern are enforceability, effectiveness, consistency, and tracking.

In February of 2000, David Lennett, Director of BRWM, commissioned a work group to review the existing institutional control procedures and processes. The group was assembled with representatives from ten programs within the Bureau plus the Attorney General's Office.

While this group has focused upon ICs, it does not wish to suggest that ICs should replace cleanups of contaminated media for purposes of remediation. To the contrary, the IC Group believes that remediation of contaminated sites should be carried out where necessary to protect the human health and the environment. ICs should then be used to supplement active remedies where a complete cleanup is impracticable.

ICs include legal measures designed to prevent or limit exposure to hazardous substances and/or to protect a remedy, such as a landfill cap, from disturbance. Examples of ICs used by the Bureau in the past are restrictive covenants, conservation easements, administrative orders, deed affidavits, municipal ordinances and license conditions. Regardless of the documentation, the most important component is making sure that people are made aware of site conditions.

Among the specific recommendations made by the workgroup were:

- IC documents require care in construction, attention to detail and must clearly define the ICs and roles of the parties
- Develop a searchable database and tracking system
- Develop a systematic enforcement approach
- Develop and use checklists and models
- Conduct in-house training on use of ICs
- Hold meetings with Maine Municipal Association, consultants, realtors, lenders and other groups concerning need for and use of ICs

In the Autumn of 2000 a new workgroup was formed and charged to draft model IC documents, guidance and a system for tracking property subject to ICs.

Petroleum Hydrocarbon Remediation Program

The Oil Remedial Planning Unit's (RPU) staff of three project managers is part of the multi-division program group that works together to respond, investigate, remediate, seek responsible party participation, and provide long term protection to Maine residents who have been impacted by petroleum hydrocarbon contamination. Engineers, geologists, and a chemist from the Bureau's Technical Services Division provide us with much assistance. Consultants and contractors are frequently utilized by RPU staff to perform varied and prescribed duties. Staff work closely with local contractors, neighborhood residents, municipal officials, non-profit organizations and other Departments within Maine State Government.

The oil remediation program began the year with 389 active sites on the Statewide Priority List. As of December 29, 2000 there were 349 active remediation projects. Over the course of the year we added 107 new sites while closing 140 cases. This site list signifies a notable increase in the number of long-term remediation projects resulting from failures of Aboveground Storage Tanks (ASTs). During 2000 the RPU has managed the successful completion of ten high-priority petroleum hydrocarbon contamination cases. We are currently managing remedial efforts at twenty-eight contaminated sites that are located throughout the state. Sites range in complexity from recovering petroleum product releases and replacement of impacted residential water supplies, to regional contamination issues where entire villages are suffering from petroleum hydrocarbon contaminated groundwater and overstressed aquifers.

Below is a sampling of the RPU's 2000 remedial activities. Please note the diversity of scope in these projects. These brief project descriptions document the typical, yet diverse solutions that RPU managers use on complex projects to protect human health and the environment.

— Tom Benn, Unit Leader

Remedial Project Summaries

Off Island Store, Sprucehead

2000 Accomplishments: Removed approximately 639 tons of contaminated soil from the area where an underground storage tank (UST) had been removed approximately four years earlier. Staff employed sophisticated groundwater treatment equipment, while allowing the facility to continue to operate. We have monitored the effectiveness of the remediation system and the twelve impacted or threatened properties.

Costs: $296,644 to date.

Varney's Store, Windsor

2000 Accomplishments: Removed approximately 4,000 tons of oil contaminated soil from the property. As part of the remediation, the store's aboveground oil storage tanks (AST) were relocated and upgraded.

Costs: $417,377 to date.

Kennebec Quik Stop, Chelsea

2000 Accomplishments: Successfully monitored the store's well and several area residents' drinking water supplies. The property's use as a gas station has been replaced by Joe Kelly's Restaurant.

Costs: $162,654

Groveville Service Center, Buxton

2000 Accomplishments: The remediation system was shut down. After one year of water-quality monitoring, it was determined that the treatment system could be dismantled and removed from the site. All site monitoring wells were abandoned and the site closed.

Costs: $265,753

Tory Hill Site, Buxton

2000 Accomplishments: A substantial ground water extraction and treatment system was brought on-line in March. It's been operating at approximately 80% capacity since that time, resulting in substantial reductions in ground water contamination.

2001 Objectives: Continue to monitor the operation of the ground water extraction and treatment system, monitor ground water quality and maintain residential point of entry carbon filters for thirteen nearby properties.

Costs: $1,016,825 to date.

East Madison Store

2000 Accomplishments: Completed the remedial activities at the site; a convenience store is currently occupying the property.

Bessey et al., Hinkley

2000 Accomplishments: In 1987 DEP staff responded to a complaint of gasoline odors in drinking water. Six Fairfield residences, the Hinkley Post Office and the Hinkley General Store comprised the initial site. In 1991 DOT road reconstruction crews observed additional contaminated soils and UST piping, referring the problem to DEP staff for follow-up.

Bessey Spill excavation, Hinkley Village in Fairfield.

Almeda Adams lawn after excavation of contaminated soil, Fairfield.

In 2000, DEP staff conducted extensive geophysical and test-pitting investigations. The use of ground-penetrating radar led to the discovery of additional buried sources of contamination. Historical research and anecdotal information pointed to additional locations where petroleum hydrocarbons may have been released.

In July, DEP Project Manager Chris Swain spearheaded

Bessey Spill Excavation, Fairfield.

Removing the 500-gallon gasoline aboveground storage tank from the Richard Roude property, Fairfield.

a very large excavation that required extensive engineering expertise. At times, the project required crews to work in the breakdown lane of Route 201 in Fairfield. Subsequently, over 3,000 tons of petroleum hydrocarbon contaminated soil was removed from several locations in the village.

The accompanying photos document the enormity of the dig and its proximity to a major Maine highway. Within

three weeks time the contaminated soils were successfully removed and the site restoration work was nearly complete with roadside curbs, driveways and lawns restored to pre-dig conditions.

Costs: $161,454.00.

Pete's Garage, Fryeburg

2000 Accomplishments: Project site remediation is now complete; two remaining Third-Party Damage Claims (3PDCs) are to be settled.

Lowell Cove Remediation, Harpswell

2000 Accomplishments: Successfully replaced one petroleum-contaminated drinking water well while continuing quarterly monitoring of the Point-of-Entry (POE) treatment systems that are employed at area residences. Geoprobe investigations were conducted at an area of contamination; a removal action is scheduled at a later date. Staff engineered and installed a ground water pump and treat system at the Methodist Church Sunday School drinking water well for remediation purposes.

2001 Objectives: Remove thirty-three POE carbon filtration systems from residential drinking water supplies that have tested clean for more than four consecutive calendar quarters. Excavate contaminated soil found during the geoprobe study and continue the operation of the pump and treat system at the Sunday School. Continue quarterly monitoring for fifteen residences whose water supplies are still contaminated.

Costs: $583,327 to date

Lee Village Remediation, Lee

2000 Accomplishments: Site Closure completed.

Costs: $419.900

Koobs Garage, et al., Oquossoc

2000 Accomplishments: Installed and tested replacement drinking water supply wells. Worked successfully with land owners and land trusts to acquire access agreements. The Dufresne-Henry Company has been selected to complete the replacement drinking water system. Oquossoc Water District trustees and the DEP team have been jointly developing an infrastructure.

2001 Objectives: Complete the construction of the replacement drinking water utility.

Costs: $178,808

Anderson & Small Remediation, Richmond

2000 Accomplishments: Monitored residential water supplies and terminated the remedial site activities.

Costs: $517,728

S & M Cash Market, South China

2000 Accomplishments: Monitored the effectiveness of on-site remediation system and nearby homeowners' drinking water supplies.

2001 Objectives: Removal of USTs planned for Spring. Continue to operate treatment system and continue monitoring the ten local area private drinking water supplies for one year. After that time, the site will be closed.

Costs: $823,971 to date.

Long Cove, St. George

2000 Accomplishments: Continued sampling of neighborhood water supplies and installed/maintained granular activated carbon (GAC) filter systems to treat 12 residences with contaminated water.

Village Remediation, Tenants Harbor

2000 Accomplishments: Sampled drinking water supplies within the village. Provided GAC filtration to homes found to be impacted, bringing the total number of filtered properties to one hundred and one. We have operated several groundwater treatment systems in the village. Design of the replacement utility is well underway with start of construction planned for March 2001. Staff has conducted informational meetings and published the third Tenants Harbor Waterline Newsletter at the end of year.

2001 Objectives: Complete the construction of the replacement drinking water utility. Close the site.

Costs: $1,815,200 to date.

Hilltop Store, Thorndike

2000 Accomplishments: Installed and successfully monitored a second replacement well. Remedial work accomplished. One 3PDC needs to be completed prior to closure.

Costs: $192,061

Murray Oil Remediation, Turner

2000 Accomplishments: Finished remedial actions and provided several impacted residents with permanent filter systems and operational subsidies. Some 3PDC work is needed to complete administrative details.

Whitefield Elementary School Remediation

2000 Accomplishments: Replacement drinking water supply remains clean. Preparing the site for closure.

Costs: $215,055

Federal Facilities and Superfund Unit

At the close of one century and dawn of another, the Federal Facilities and Superfund Unit confronted contamination that resulted from twentieth century waste disposal practices and explored several new approaches in hopes of more thorough twenty-first century remedies.

We began to examine the long term effectiveness of institutional controls at our sites. We closely followed the development of national guidance for institutional controls and formerly used defense sites and offered comments to both EPA and the Department of Defense through the Association of State and Territorial Solid Waste Management Officials (ASTSWMO). We were present at the ASTSWMO Mid-Year meeting, and the ASTSWMO Superfund Managers Conference. Unit staff made presentations at the New England Waste Management Officials Association Technology Transfer Conference and the DOD Stakeholders Forum.

Some additional milestones are presented below:

— Denise Messier, Unit Leader

National Priorities List (NPL) Sites in Maine

O'Connor Junkyard, Augusta

In addition to monitoring, a biota survey of Riggs Brook was performed to check on the health of fish & wildlife living near the site. Evaluation of the options for restoring the groundwater to drinking water standards has begun.

Saco Municipal Landfill, Saco

The Record of Decision was signed. Monitoring and inspections continued. The City of Saco has begun working to convert a 5- acre abandoned quarry area into a Habitat Enhancement Area.

Eastland Woolen Mill Superfund Site, Corinna

Data was collected for the Remedial Investigation and Feasibility Study, including sampling and analysis of ground water, surface water, residential wells, soil, sediment, and biological testing in the East Branch of the Sebasticook River.

The early cleanup activities that occurred at the site in 2000 include the following:

- Abatement of hazardous materials & asbestos in the mill buildings,
- Demolition of the mill buildings,
- Demolition of several buildings located on Route 7,
- Relocation of the Odd Fellows Hall building,
- Relocation of utilities,
- Relocation of the East Branch of the Sebasticook River,
- Relocation of the Route 7 bridge over the East Branch of the Sebasticook River, and
- Stockpiling more than 23,000 cubic yards of contaminated soils.

Summer 1998 — Before work began, Eastland Woolen Mill
Photo courtesy of Ken, Betty & Herb Dow (Cattail Press)

October 2000 — Significant work progress is evident.
Photo courtesy of Ken, Betty & Herb Dow (Cattail Press)

Eastern Surplus Superfund Site, Meddybemps

The early cleanup activities, consisting of the Groundwater Extraction & Treatment System operation and a Phase III archaeological investigation, continued at the site. In addition, a chemical oxidation pilot study (using sodium permanganate) was initiated to determine

if full-scale use at the site will enhance and quicken the groundwater cleanup.

The Phase III archaeological investigation and evaluation conducted at the site revealed a wealth of information in a mere 200 square meters. On September 19, 2000 an Archaeological Open House was held at the site and the Passamaquoddy Tribe named the site "Ntolonapemk" which means "Our Ancestor's Place".

Phase III - Archaeological investigation / dig, Eastern Surplus.

Artifacts uncovered during the archaeological dig, September 2000, Eastern Surplus

Additionally, EPA finalized and released the Record of Decision document that includes the remedial cleanup plan for the site.

Union Chemical Company Superfund Site, South Hope

During 2000, an additional phase of potassium permanganate and sodium permanganate injection was conducted at the site. The potassium and sodium permanganate compounds react with the remaining dissolved solvents located below the ground surface to break them down into non-hazardous compounds, such as salts.

Winthrop Landfill Superfund Site, Winthrop

During the fall of 2000, a pilot study – called Oxygen Release Compound was initiated at the site. The goal is to see if this approach will effectively decrease the amount of arsenic present in the groundwater due to the reducing conditions created by the landfill.

McKin Company Superfund Site, Gray

Throughout 2000, the stakeholders worked to make the "settlement in principle" a reality by signing a Memorandum of Understanding and implementing various components.

West Site, Hows Corner, Plymouth

A group of responsible parties voluntarily committed to conducting the investigation and formulating alternatives for remedial action. Field work was completed and the draft reports submitted for review in 2000. DEP and the Plymouth Water District successfully concluded negotiations resulting in a transfer from the Uncontrolled Sites Fund of a $601,000 subsidy for water district operations. The transfer of the actual property is in progress.

Department of Defense Sites

Brunswick Naval Air Station

Long term monitoring plans were finalized for Sites 1, 2, 3 and 9, the Eastern Plume and Building 95. An Explanation of Significant Difference (ESD) was signed to convert the Groundwater Extraction Treatment System from ultraviolet oxidation to air stripping and to discharge the effluent to an infiltration gallery. The ESD also added institutional controls for the Eastern Plume. The first Five-Year Review was finalized.

Portsmouth Naval Shipyard, Kittery

The Feasibility Study for the Jamaica Island Landfill (JILF) was completed. In addition, an agreement was reached between the Navy and DEP addressing migration of contaminated groundwater from the JILF. The Navy dug test pits in the JILF as part of a program to locate suspected buried drums. Twenty-five drums were found in one test pit. The Navy also located and removed several concrete vaults containing drummed mercury waste in the JILF. The Estuarine Ecological

Risk Assessment, begun in 1991, was completed. The Revised Risk Assessment for the Defense Reutilization Marketing Office was completed. Two rounds of offshore monitoring (surface water, sediment, lobsters, and mussels) were completed.

Former Air Force Radar Tracking Station, Bucks Harbor (Machiasport)

The US Army Corps of Engineers continued monitoring residential wells in the Bucks Harbor area. The Bucks Harbor Restoration Advisory Board met in March, August and December to communicate community concerns regarding the site. The Corps continued to develop alternatives for removal of threats to wells contaminated by the facility.

Long Island Former Fuel Farm, Long Island

Most remedial action was completed in 1999. However, some petroleum contaminated soil remains along a former fuel pipeline. The DEP met with the US Army Corps of Engineers and Apache Oil and worked out an agreement by which the Corps and Apache will share responsibility for removal and disposal of the contaminated soil. Removal of this soil will take place Spring 2001. The Corps also completed two rounds of monitoring well sampling.

Aroostook County Formerly Used Defense Sites

Work continued at several sites in "The County". At 3 sites, LO-13 Nike Launch and LO-13 Nike Control in Caswell and the Laundry Annex in Presque Isle, DEP approved moving from an investigation into a long term monitoring phase. The remaining problems at these sites are fairly minor and most of the cleanup is done. At the LO-58 Nike Launch Site in Caribou, investigations continued into the source of trichloroethene (TCE) impacting the on-site drinking water well. DEP continued to maintain a filtering system on the drinking water supply and performed quarterly monitoring to track TCE levels. The Army Corps of Engineers has taken the lead in investigating the extent of impact to the soils and groundwater by performing geoprobe studies of the overburden soils and by the installation and sampling of five bedrock wells. In Perham, at the Loring Communications Annex, the latest round of investigations revealed a significant impact to the groundwater by petroleum products. More investigation is needed.

Closure and Transfer of Department of Defense Property

The most recognizable recent closure and transfer of military property in Maine, the elimination of Loring Air Force Base, was authorized by Congress under the Base Closure and Realignment Act (BRAC) of 1991. Such closures are sanctioned with much debate, discussion, public input and allocation of funds for community development. Not all military transfers in Maine have been subject to this process. In 2000 the Federal Facilities and Superfund unit provided oversight and advice to the military, towns, and citizens for "non BRAC" closures and transfers in Winter Harbor, Corea, Cutler, Topsham, Portland and Harpswell in addition to our continuing involvement with the Loring Commerce Center.

The environmental status of property slated for closure must be described in an Environmental Baseline Statement (EBS). Certain conditions, like the presence of radon, lead based paint in good condition, or asbestos containing material, must also be disclosed in the deed transferring the property to the new owner. Depending on the age and past use of the facility, investigation may be warranted since activities such as waste disposal, use of transformer oils containing polychlorinated biphenyls, and fire training areas may have been likely, but poorly documented. Following satisfactory completion of the EBS, the Department of Defense prepares a "Finding of Suitability to Transfer" document prior to actually drafting deeds. The division of resources and responsibility in the military can complicate the process. Sometimes one agency is responsible for assessing potential environmental damage and cleaning up contamination and another agency of DOD, or the General Services Administration, has the authority to actually transfer the deeds.

As of December 2000, the non BRAC properties that have come to our attention include:

Naval Computer & Telecommunications Station, Cutler

The portion of the base devoted to administration and support of personnel and their families is slated to be transferred. The DEP has reviewed a draft EBS for the transfer.

The entire site was designated an Uncontrolled Hazardous Substance Site in 2000. The impacts from the previous painting and stripping of the towers on the VLF peninsula and adjacent areas has been included in the Navy's Installation Restoration Program. DEP, in conjunction with Department of Marine Resources, collected sediment samples and shellfish (clams and mussels) in Little Machias Bay. The samples were analyzed for cadmium, chromium, copper, lead and PCBs. Twenty tons of PCB contaminated soil was removed from the South Helix House. A workplan for the tower containment and air monitoring for the current paint removal contract for the VLF towers was finalized.

Naval Security Group Activity, Winter Harbor and Gouldsboro (Corea)

The Navy prepared EBS reports for 3 separate properties. The Main Base on Big Moose Island at the

tip of Schoodic Peninsula, the housing area in the Town of Winter Harbor and the operations in the Village of Corea, Town of Gouldsboro.

During the DEP's review of the draft EBS for the operations area in Corea, several areas of concern were identified involving the facility's use and disposal of herbicides, solvents, PCB transformers, and wood preservatives. Navy has issued a finalized EBS but DEP reserved its concurrence pending the receipt of additional information and the results of these additional investigations. The Navy has pledged to resolve DEP's concerns through these additional investigations in time for the base closure scheduled for 2002.

Wullenweber Antenna Array, one of several areas of concern at the Operations Area, Corea

Photo courtesy of Malcolm Pirnie

Topsham Annex

The Topsham facility initially belonged to the Air Force and was operated as an early type of radar system. When the Air Force closed the radar facility, the Naval Air Station at Brunswick obtained use and responsibility for the property. Recently, part of the Annex was conveyed to SAD 75 for construction of a new middle school. Unit staff provided advise to the school district.

Naval Recruiting Center, Portland

An EBS was prepared for a relatively small property in Portland that operates as a Naval Recruiting Center. DEP offered comments to both Navy and a prospective user in 2000.

Defense Fuel Support Center Harpswell

The outstanding issues of concern, including those associated with the water supply well, were addressed and either resolved or plans were formulated to effect their resolution through additional work. Biannual sampling of selected ground water wells will be required for a long time as the slow process of natural ground water recovery continues. Use will be limited until DEP finds that the entire aquifer has recovered.

Harpswell to Brunswick Pipeline

The pipeline connects the former fuel farm at Harpswell to the Brunswick base. The military owns easements for the pipeline. No spills or leaks of fuel have been identified. The pipes are reportedly wrapped in asbestos covering that should not pose a hazard as long as the pipes remain buried. DEP has requested DOD work with us to inform property owners of the presence of asbestos and options for proper disposal.

Searsport to Loring Pipeline

The pipeline that transferred fuel from Searsport to Limestone is no longer in use. The northern portion, from Bangor to the former Loring Air Force Base, suffered several releases of petroleum, most notably at Mattawamkeag and Argyll. Soil cleanups are underway at these two locations. The southern portion was kept active to supply fuel to Bangor for a while, but is slated for closure and transfer.

Loring Commerce Center/Loring Air Force Base, Limestone

In addition to the long-term cleanup effort at Loring, work on the transfer process continues.

(1998) Removal of PCB contaminated sediment from the East Branch of the Greenlaw Brook, former Loring Air Force Base, Limestone.

Two years after restoration, the brook shows marked improvement.

Site Assessment and Support Services Unit

The Site Assessment & Support Services Unit administers the Voluntary Response Action Plan (VRAP) Program, the State Brownfields Program, the federal Site Assessment Program for EPA's CERCLA (the federal list of hazardous waste sites) sites, and conducts initial investigations, sampling, removal actions and routine monitoring for sites within the Division's different programs. During 2000, the unit conducted a number of site assessment activities and presented education/outreach opportunities through our two EPA grants - the Core Program Cooperative Agreement (Voluntary Cleanup Portion) and the Multi-Site Cooperative Agreement II (MSCA II). The unit created and published Issues 3 through 5 of the "Maine VRAP/Brownfields Newsletter" with funds from the Core Grant, and completed CERCLA assessments, Brownfields Site Assessments and Site Discovery Projects through our MSCA II grant.

Unit staff submitted nine final site assessment reports to EPA in 2000: 2 Site Inspections, 3 Mini-Site Inspections, 3 Site Discovery Reports, and 1 Brownfields Site Assessment. Additionally, 2 sites were removed from the active CERCLA list following the recommendations of the unit, bringing the total number of sites archived through the EPA Archive Pilot to 44 sites.

Initial investigations were conducted at ten new sites, including basic environmental reviews of three properties for the Land for Maine's Future Program. Follow-up investigations were completed at sites in Fairfield, Baldwin and Madawaska. Routine sampling (quarterly or semi-annual) was completed at 31 sites to monitor impacts to drinking water supplies. The unit also assisted the Landfill Closure unit with monitoring and mini-investigations at 11 municipal landfills.

— Nick Hodgkins, Unit Leader

VRAP / Brownfields

In 2000, the VRAP Program added 47 new sites, to bring the program total to 257 sites. Of these 257 sites, 41 were remediated and/or resolved to the Department's satisfaction in 2000, to bring the total number of sites resolved to 202 since the inception of the program in December 1993. Remedial actions were completed at an additional 6 sites, with final resolution anticipated during early 2001. Nineteen sites currently have remedial actions in progress. The other thirty sites are awaiting further investigation and/or the development of remedial plans. The VRAP Program received $31,233.49 in fees in 2000.

Issues 3 through 5 of the "Maine VRAP/Brownfields Newsletter" were created and published in 2000. The newsletter reports on issues relevant to both state and federal efforts at voluntary cleanup and brownfields sites. It also provides an opportunity to get EPA grant application information to the state's municipalities in a timely manner. The newsletter is currently sent to over 600 recipients, including municipal officials, environmental consultants, attorneys and lenders.

Some specific site highlights of 2000 include:

Goudy & Stevens South — East Boothbay

The new Hodgdon Yachts facility in East Boothbay, built on the former Goudy & Stevens Boatyard facility, received final certification through VRAP in 2000. The site once had large amounts of "black beauty" blasting grit, which was contaminated with low levels of lead, scattered all about the ground surface and within the intertidal zone. The Goudy & Stevens Boatyard, as previous owners and operators at the property, had used the grit to remove paint from boats in preparation for repair and re-painting.

Former Goudy & Stevens South Facility, East Boothbay

Hodgdon implemented a VRAP workplan that included the encapsulation of the lead contaminated grit (and associated soils) underneath the foundation of the new facility or within the reconstructed shorefront. The remedial measures have effectively eliminated potential contact with and erosion of the soils, mitigating the risks.

Hodgdon's new boat building facility allows them the operating space to build large vessels, such as the 154 foot yacht they are currently working on, and the reconstructed shorefront includes a new boat-way for easy launching access. Part of the shorefront reconstruction also included the construction of a public boat launching ramp and greenspace for the Village of East Boothbay.

New Hodgdon Yachts Facility — East Boothbay

Hodgdon is one of the leading builders of large wooden sailing yachts in the world. Redeveloping this old boatyard facility allowed the company to remain in the Boothbay region, where it has been since 1816. Their new state-of-the-art facility will allow Hodgdon, currently the largest single employer on the Boothbay peninsula, to continue to grow and prosper as a company.

Apollo Tanning — Camden

The Apollo Tanning Site, located on Washington Street in Camden, began operations in 1887 as a woolen mill. Wool manufacturing operations continued at the site under various owners until 1953 when the site was converted to a tannery. Tanning activities continued until 1999 at which time the site became inactive. This site operated under the jurisdiction of the State's Resource Conservation and Recovery Act (RCRA) program while it was an active production facility. However, in 2000, the Town of Camden requested the site be investigated as a potential Brownfields site. Because the site owner was considering filing for bankruptcy, DEP and EPA agreed this site met the qualifications for a Brownfields Site Assessment report.

Front of Mill Building 3; portion of the building housing the "dry" processes. Apollo Tanning — Camden

Area of subsurface Stoddard Solvent contamination. Apollo Tanning — Camden

In August 2000, DEP staff conducted an onsite sampling event to determine if hazardous substances had been released to the environment from the facility. In an effort to expedite the investigation and obtain results quickly, samples were collected using a truck-mounted direct-push drill rig, an onsite mobile laboratory and an x-ray fluorescence metals analyzer. Thirty-six samples were collected on and around the site from soil, ground-water and sediment from the Megunticook River. Samples were analyzed for various metals, volatile organic compounds, semi-volatile organic compounds, fuel oil and gasoline. Results of these analyses showed high levels of Stoddard solvent contamination as well as other hazardous substances at lower levels in soil and ground water throughout the site. Low levels of contamination were also detected in the sediment samples.

Based on these results, the RCRA program and the Voluntary Remedial Action Program (VRAP) have been working with the site owner, the Town of Camden and a potential purchaser in developing a plan to clean-up the site.

Bates Mill Complex — Lewiston

The Bates Mill Complex in Lewiston was constructed between 1852 and 1923, and originally consisted of 11 buildings containing approximately 1.2 million square feet of space on a 10 acre parcel. In its prime, the Mill employed more than 5,000 people and was one of the nation's largest manufacturers of textiles. However, the declining fortunes of the New England textile industry affected the Mill to the point where only 25 employees worked at the complex in 1992, when the City of Lewiston assumed ownership.

Bates Mill — Lewiston

After taking ownership of the Bates Mill Complex in 1992, the City recognized that environmental contamination present throughout the Complex was prohibiting redevelopment. A Phase I Environmental Assessment was completed in 1996; however the City lacked funds to conduct the cleanup work. In 1998, the US Environmental Protection Agency determined that the contamination represented a significant hazard to the public and subsequently removed transformers containing PCBs, drums of chemical waste, and asbestos containing materials. Although the EPA work significantly reduced the environmental problems at the mill, additional work was necessary. In 1999, the City of Lewiston received a EPA Brownfields Pilot Project Grant for the Mill complex. Grant funds were used to complete a more comprehensive Phase II Environmental Assessment of the Mill Complex. Work focused on Mills 3 and 6, which were under negotiation for purchase by a local developer. Contamination in these buildings was relatively limited and only minor remedial actions were required.

The City and Department have finalized a Memorandum of Agreement outlining the responsibilities of the Department as the Brownfields Site Assessment Manager and the City as the Lead Agency for remediation of contamination at the Bates Mill Site. Additional environmental assessments were conducted at several lots in the mill; remedial actions that were agreed upon will be addressed by the City through the Department's Voluntary Remedial Action Program. The VRAP program will provide the legal assurances to the City and future owners necessary to develop the property if contamination is cleaned up as agreed upon. The environmental assessment information, remediation plan, EPA funds, and Department support were critical components in "sealing the deal" with the local developer.

Removal Actions

During the past year the unit has provided oversight of remedial actions at a number of private-lead sites. In addition, 800 tons of solvent contaminated soil were removed in a cooperative effort with EPA Region I at the Marine Trades Center site in Eastport (formerly a pearl-essence plant), and the unit assisted the Division of Response Services with the removal of waste containers and contaminated soil at an old farm in Greene.

In a state-lead effort, metal debris and other solid waste material was removed from an old farm building site in Monticello in December. The removal of the debris will allow the unit to complete an assessment at the property during 2001.

The follow-up investigations conducted in 2000 at an old dump site in Madawaska identified buried wastes. The unit is planning a removal of these wastes in cooperation with a potential responsible party (PRP) in the spring of 2001.

Marine Trades Center facility in Eastport, prior to 2000 soil removal. Thin, white vertical lines are Geoprobe locations.

Landfill Closure and Remediation Program

The Landfill Closure and Remediation Program completed its final year of closure activities in 1999. Current legislation terminated the cost-sharing program for closure activities effective January 1, 2000. Subsequent closure work will be ineligible for any state cost-sharing. However, any Department authorized remedial actions that are conducted by the municipalities at their closed landfill sites will continue to be funded through a cost-sharing program.

Although the cost-sharing portion of the closure program has ended, one additional site completed closure work and several towns finalized certification of closure work that was actually completed in 1999. As of December 31, 2000, 371 of the 402 municipal landfills identified in Maine have been officially closed. Of the remaining 31 sites, 16 are listed as inactive and 15 as active, licensed facilities. Since the 16 inactive sites did not complete a specified site closure under DEP supervision, they are considered non-compliance sites that may be subject to future enforcement actions by the Department. Based on these figures, approximately 92% of the state's municipal landfills have been successfully closed.

With the termination of the cost-sharing program for landfill closures, the Landfill Unit has begun to focus on remedial actions at closed landfill sites, the review of post-closure monitoring reports and the implementation of a systematic post-closure inspection program.

— Ted Wolfe, Unit Leader

Program Changes

Although no new legislative changes were enacted in 2000, changes in previous years took effect on January 1, 2000 that have resulted in a change of focus in the program. As of January 1, 2000 no additional closure activities were eligible for the 75% cost sharing through the Landfill Closure and Remediation Program. With the subsequent decline in the number of landfill closure projects, the program has begun to place greater emphasis on post-closure inspections and remedial projects.

Funding Status

Maine voters have approved 10 of 11 landfill closure bonds totaling $75 million. As of December 31, 2000, $75 million in bond funds had been made available to the DEP. An additional $3 million in general funds were also made available to the program in 1998 and $1.25 million in 2000. A total of $250,000 remains available to the program for remedial actions and investigations.

Closure/Reimbursement Status

Completed closures previously credited to 1999 included the municipalities of Bangor (demo debris site), Lisbon, Regional Waste Systems (RWS), Westbrook (Sandy Hill site), Sanford, Northern Aroostook Regional Incinerator Facility landfill (NARIF), Augusta Sanitary District Landfill, Hartland, South Portland (demolition debris site) and Tri-Community Sanitary Landfill. These larger, more expensive projects received only partial cost-sharing payments due to a shortage of available funds. The $1.25 million in general funds, made available to the program in 2000, allowed the Landfill Closure and Remediation Program to reimburse these municipalities for any remaining state cost-share obligations remaining from these projects. These payments completed the program's landfill closure cost-sharing activities.

Post–closure Inspections

The Program instituted its first year of post-closure inspections. A total of 68 sites were visited during the 2000 field season. Walkovers of the sites were conducted to identify maintenance issues including erosion, invasive vegetation, damaged vent pipes and monitoring wells, etc. Where municipalities failed to implement a post-closure monitoring program or where new residential development had occurred, Department staff collected ground water samples for analysis. As a result of these inspections, 3 sites were identified that pose a potential risk to ground water or surface water resources. Future investigations will be conducted to determine the extent of potential risks.

Remedial Investigations

Corinna Landfill

Department staff continued to monitor both the landfill and area residential wells at this closed, high-risk landfill site. Closed with a composite cover system in 1996, the monitoring wells are still indicating high levels of VOC contamination of industrial origin. A number of the residential wells have shown low, intermittent levels of organic compounds. There is also concern for continued residential growth in the area.

It is anticipated that the State will contract for additional

remedial investigations during the coming year in order to determine the type and extent of contamination emanating from the landfill. *(Robert Birk)*

Winter Harbor Landfill

This closed landfill site is responsible for contaminating four nearby residential wells with tetrachloroethene (PCE). Filter systems have been placed on the residential wells. Industrial and/or governmental use of the landfill has not been ruled out. During the past year the Department completed additional remedial investigations under contract with GZA, Inc. This work consisted of surface geophysical investigations and extensive test pitting through the earthen cover system in hope of locating drums or other sources of contamination for a possible removal action. While the information gained was useful in determining the relationship between the wastes and groundwater, no overt, intact sources were located.

Looking for the source that has contaminated local wells, an excavator digs a test pit in the landfill — Winter Harbor

Looking into the open test pit — Winter Harbor

Significantly, a meeting with the Town in November resulted in agreement that the Town would be moving to develop a plan and the funding necessary to extend an existing water line to the affected residential area. It is anticipated that a partial State Remediation Grant will be developed to help fund the project, which could be implemented as early as 2001. *(Robert Birk)*

Examining a drum in the test pit debris — Winter Harbor

Wells Route 9B Dump

The so-called Indian Trail Landfill was operated between the 1920's and 1971. After a new dump was established elsewhere, the property changed hands and a residential subdivision was developed on and around the old landfill. Under existing Laws, DEP does not have jurisdiction over the site through its *Landfill Closure-Remediation Program* since the site ceased operating before February 1976. Some limited monitoring was completed here during the 1990's. Due to continuing concerns from residents, DEP successfully urged the Town of Wells to voluntarily contract for professional services to better determine risks posed by the site. Stratex, Inc. completed water supply and gas monitoring and better defined the solid waste boundary of the site. Results indicate that while no high risks to residents were indicated, at least 12 water samples showed clear impacts from the old landfill. No landfill gases were detected in the residential structures.

As a follow-up to several town meetings, the voters approved a waterline extension to the area of the landfill. It is anticipated that the waterline project will be implemented this coming year. Additionally, there are Legislative efforts underway that, if successful, would provide the Department with legal jurisdiction over these types of old landfill sites throughout the State. *(Robert Birk)*

Woolwich Landfill

The potential for new residential development near the closed Woolwich landfill resulted in an inspection of the site by Department staff. Sampling of residential and monitoring wells confirmed the presence of landfill contaminants in ground water. A newly established residential well was found to be contaminated approximately one year after its initial placement and one month after the family took up residence at that location. Additional site investigations have been initiated to better define the extent of the contamination and to consider appropriate remedial actions for the development of alternative water sources. *(Ted Wolfe)*

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IN RETROSPECT…

Before Remedial Action *During Remedial Action* *Oxford Hills High School Athletic Field*

Wilner Wood Products Company operated a lumber mill and shoe-heel manufacturing facility in South Paris until 1991. The abandoned property became an uncontrolled hazardous substance site in 1994 when a large PCB spill occurred at the former facility. The Department worked closely with the Town of South Paris and the School Administration District 17 in clean-up and reuse of the site. The former manufacturing facility is now athletic fields for the expansion of Oxford Hills High School and residential neighborhood.

Included in the designation is a 6-acre landfill where 243 drums of hazardous substances were removed. In 1998-99, the Department directed a remedial investigation, feasibility study and final closure of the landfill using $1.5 million in bond money. The Department's contractor, CMA Engineers, Inc., designed an innovative landfill cover system employing a geosynthetic clay liner that received national attention.

This project exemplifies how innovative thinking and technology together with cooperation from the community can lead to beneficial reuse of an industrial hazardous waste site.

— Lynne Cayting